

## REMARKS

Claims 1-31 and 40-45 are pending. Claims 1-23, 26-31, and 40-45 have been rejected. The indication of allowability of Claims 24 and 25 is noted with appreciation. Reconsideration and allowance of Claims 1-31 and 40-45 in view of the following remarks is respectfully requested.

### The Rejection of Claims 1, 4-6, 8, 11, 26, 40, 43, and 44 Under 35 U.S.C. §§ 102(a) and 102(e)

Claims 1, 4-6, 8, 11, 26, 40, 43, and 44 stand rejected under 35 U.S.C. §§ 102(a)/(e) as being anticipated by U.S. Patent No. 6,180,942, issued to Tracy et al. Withdrawal of the rejection is respectfully requested for the following reasons.

Claims 1 and 40 are the pending independent claims. Claims 4-6, 8, 11, and 26 depend from Claim 1. Claims 43 and 44 depend from Claim 40. Independent Claims 1 and 40 each recites a charged particle detection system that includes a plurality of charge-collecting zones, "wherein each charge-collecting zone is isolated and electrostatically shielded from neighboring charge-collecting zones by a separator comprising an insulated electrical conductor held at a reference potential." The claimed charged particle detection system includes a plurality of charge-collecting zones in which each charge collecting zone is electrically and capacitively decoupled from all others, a feature that the cited reference does not describe.

Applicants respectfully disagree with the Examiner's interpretation of the Tracey reference. The Examiner states that

Tracey's separator comprises an electrical conductor (charge storage) 38 held at a reference potential, the conductor 38 insulated by silicon oxide insulator 35, as shown in Fig.3A or Fig.4, wherein each charge-collecting zone 34 is electronically interfaced (over the charge storing unit 38) to multiplexing unit connected to 40, as shown in Fig.3A.

Figure 3A of the reference shows a plurality of charge-collecting zones mounted on a substrate with clearly no electrostatic shielding between the charge-collecting zones whatsoever.

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Similarly, Figure 4 of the reference is a cross section view that clearly shows no electrostatic shielding between the charge-collecting zones (34) resulting from a conductor held at a reference potential, as recited in the present invention.

The Examiner appears to argue that the zone 38 of Tracey is functionally the same as the charge-collecting zone of the present invention, which is not the case. Even if it were the case, the reference fails to describe electrostatic shielding between neighboring zones 38, formed by a conductor held at a reference potential, as recited in the present invention.

The Examiner appears to read the present invention as having a conductor held at a reference potential somewhere along a possible path between electrodes, such as circuitously through the substrate, as indicating a reference potential conductor "between" neighboring charge collecting zones. This reading fails for two reasons. First, a conductor somewhere along a possible path is not shielding neighboring zones from each other as there are too many possible paths that would need to be shielded for this to be true. Second, the use of electrostatic shielding in the present invention clearly is illustrated to separate the zones at their closest proximity (i.e., between the neighboring zone edges). This specifically defeats capacitive coupling between neighboring zones and is not described or suggested in any way by the cited reference.

The Tracy reference nowhere describes a conductor placed between neighboring charge collecting zones, much less an insulated conductor held at a reference potential to isolate and electrostatically shield neighboring charge-collecting zones, as recited in the claimed invention. The Tracy reference illustrates a simple gap between neighboring charge-collecting zones as shown in Figure 4 of the reference.

Because the Tracy reference fails to disclose each and every element of independent Claims 1 and 40, the reference is not anticipatory. Withdrawal of the rejection is respectfully requested.

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The Rejection of Claims 17, 18, and 29-31 Under 35 U.S.C. § 103(a)

Claims 17, 18, and 29-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tracy reference. Withdrawal of the rejection is requested for the following reasons.

Claims 17, 18, and 29-31 depend from Claim 1. As noted above, Claim 1 recites a charged particle detection system that includes a plurality of charge-collecting zones, "wherein each charge-collecting zone is isolated and electrostatically shielded from neighboring charge-collecting zones by a separator comprising an insulated electrical conductor held at a reference potential."

To establish *prima facie* obviousness of a claim invention, each claim limitation must be taught or suggested in the prior art. The claimed charged particle detection system includes a plurality of charge-collecting zones in which each charge-collecting zone is electrically and capacitively decoupled from all others, a feature that the cited reference fails to teach or suggest.

The Tracy reference merely teaches supporting charge-collecting zones on insulative materials and nowhere teaches an insulated conductor held at a reference potential to electrostatically shield neighboring charge-collecting zones, effecting electrostatic and capacitive decoupling between neighboring charge-collecting zones. The Tracy reference illustrates a simple gap between neighboring charge-collecting zones, see Figure 4.

Because the cited reference fails to teach, suggest, provide any motivation to make, or otherwise render obvious the claimed invention, the claimed invention is nonobvious and patentable over the cited references. Withdrawal of the rejection is respectfully requested.

The Rejection of Claims 2 and 3 Under 35 U.S.C. § 103(a)

Claims 2 and 3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tracy reference in view of U.S. Patent No. 4,720,706, issued to Stine. Withdrawal of the rejection is requested for the following reasons.

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Claims 2 and 3 depend from Claim 1. The deficiencies of the teaching of the Tracy reference noted above with regard to Claim 1 is not cured by the teaching of the Stine reference. The Stine reference describes at Col. 5, lines 24-25, a "monochromatic image [will be] perceived should transmissions be of the same hue with intensity shadings." The Stine reference addresses features relating to color.

Because the cited references, either alone or in combination, fail to teach, suggest, provide any motivation to make, or otherwise render obvious the claimed invention, the claimed invention is nonobvious and patentable over the cited references. Withdrawal of the rejection is respectfully requested.

The Rejection of Claim 7 Under 35 U.S.C. § 103(a)

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tracy reference in view of U.S. Patent No. 5,994,694, issued to Frank et al. Withdrawal of the rejection is requested for the following reasons.

Claim 7 depends from Claim 1. The deficiencies of the teaching of the Tracy reference noted above with regard to Claim 1 are not cured by the teaching of the Frank reference. The Frank reference describes a biomolecule detector having a cryogenic, superconducting tunnel junction sensor.

Because the cited references, either alone or in combination, fail to teach, suggest, provide any motivation to make, or otherwise render obvious the claimed invention, the claimed invention is nonobvious and patentable over the cited references. Withdrawal of the rejection is respectfully requested.

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The Rejection of Claims 9 and 10 Under 35 U.S.C. § 103(a)

Claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tracy reference in view of U.S. Patent No. 5,386,115, issued to Freidhoff et al. Withdrawal of the rejection is requested for the following reasons.

Claims 9 and 10 depend from Claim 1. The deficiencies of the teaching of the Tracy reference noted above with regard to Claim 1 are not cured by the teaching of the Freidhoff reference. The Freidhoff reference describes a solid state mass spectrograph having an inlet, gas ionizer, mass filter, and detector array all formed within a cavity in a semiconductor substrate.

Because the cited references, either alone or in combination, fail to teach, suggest, provide any motivation to make, or otherwise render obvious the claimed invention, the claimed invention is nonobvious and patentable over the cited references. Withdrawal of the rejection is respectfully requested.

The Rejection of Claims 11-16, 19-23, 27, 28, 41, and 42 Under 35 U.S.C. § 103(a)

Claims 11-16, 19-23, 27, 28, 41, and 42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tracy reference in view of U.S. Patent No. 5,198,676, issued to Benveniste et al. Withdrawal of these rejections is respectfully requested for the following reasons.

Claims 11-16, 19-23, 27, and 28 depend from Claim 1, and Claims 41 and 42 depend from Claim 40.

The deficiencies of the teaching of the Tracy reference noted above with regard to Claims 1 and 40 are not cured by the teaching of the Benveniste reference. The Benveniste reference describes an ion beam intensity and emittance measuring system having an insulating substrate that supports a plurality of charge-collecting zones.

Because the cited references, either alone or in combination, fail to teach, suggest, provide any motivation to make, or otherwise render obvious the claimed invention, the claimed

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invention is nonobvious and patentable over the cited references. Withdrawal of the rejection is respectfully requested.

Conclusion

In view of the foregoing remarks, applicants believe that Claims 1-31 and 40-45 are in condition for allowance. If any issues remain that may be expeditiously addressed in a telephone interview, the Examiner is encouraged to telephone applicants' attorney at 206-695-1755.

Respectfully submitted,

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Date:

*December 5, 2005*

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